



Install a Penny Countertop

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TOOLS:

- [Paintbrush \(1\)](#)
or roller
- [Propane torch \(1\)](#)
- [Shears \(1\)](#)
- [Squeegee \(1\)](#)
or similar device
- [Timer \(1\)](#)



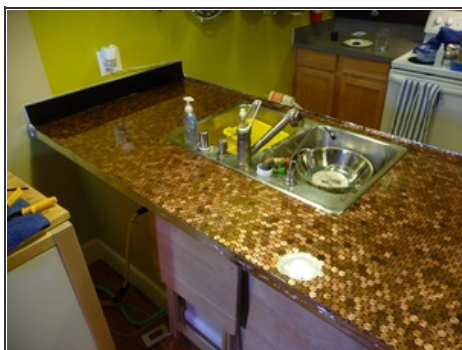
PARTS:

- [Aluminum flashing tape \(1\)](#)
- [Vessel \(2\)](#)
Recommend disposable
- [Vessel \(4\)](#)
Recommend disposable
- [Paint \(1\)](#)
- [Pennies \(1\)](#)
- [Acrylic resin \(1\)](#)
- [Oxalic acid cleaner \(1\)](#)
Or other steel sink cleaner

SUMMARY

We used two part clear epoxy and a bunch of pennies to make a counter top that has held up remarkably well under all kinds of abuse, and never fails to stop new visitors in their tracks.

Step 1 — Prepare the Surface



Coin Covered Countertops					
Per-square-foot Cost Comparison					
	Coins		Resin		Total
	Qty	Cost	Amount	Cost	
Pennies	288	\$2.88	5.62oz	\$2.63	\$5.51
Nickels	232	\$11.60	4.51oz	\$2.12	\$13.72
Dimes	340	\$34.00	6.01oz	\$2.82	\$36.82
Quarters	175	\$43.75	5.13oz	\$2.41	\$46.16
Half Dollars	115	\$57.50	3.77oz	\$1.76	\$59.26
Dollars	150	\$150.00	4.33oz	\$2.03	\$152.03
Laminate					\$10-40
Granite					\$40-150
Quartz					\$50-120

Resin amount is based on 1/8" deep pour minus coin volume. Resin cost based on \$60/gallon. Comparison prices based on a quick Google search.

- The project actually takes 4-6 hours of actual work. The rest is curing and drying time.
- Clean the surface thoroughly, and prepare it for painting. If it is a smooth or polished surface use sand paper or steel wool to scratch up the surface enough for the paint to adhere.
- We recommend using a dark color for the best dramatic effect. The pennies will not cover 100% of the surface so if you use a bright color, there is a good chance it will show through.
- Allow the paint to dry thoroughly before proceeding.
- Determine how many pennies and how much resin you will need. The chart provided assumes 1/8" deep resin over the coins. Additional layers will require approximately 10oz of mixed resin per square foot for each additional 1/8" of depth desired.



Step 2 — Prepare the Pennies



- Wash the pennies in plain soapy water to get rid of large debris and dirt. The goal here is just to get the pennies relatively clean, not to polish them back to a bright copper finish.
- Take a portion of the pennies (we did about 20% of ours) and dump them into a bucket with hot water and a cleaner that lists Oxalic Acid as a primary ingredient. We used a common one called 'Barkeep's Friend', but it's no better or worse than any other
- The bucket should be no more than 1/3 full with pennies and water, and the water line should be higher than the pennies. Adding a bit of sand will help polish the pennies, but be sure to use a strainer and wash it out before using the pennies.
- Put a lid on the bucket and shake it vigorously for 2-3 minutes. Pop off the lid, drain off the sudsy water and rinse thoroughly. Most of the pennies should now be bright and well polished. Spread them out and allow them to dry thoroughly before proceeding
- *You can polish the whole lot if you like, but we recommend laying the pennies out and looking at them for a while before committing to them. We like the patterns and visual interest that the mixture of burnished and not burnished provides.*



Step 3 — Create the Edge



- Use the aluminum flashing tape, or other semi rigid barrier to create a dam around the edge of your work surface. The edge needs to sit a little higher than the thickness you plan to pour the epoxy to.
- Make certain the seal around the edge of the surface is water tight, and that whatever you are using for a dam is strong enough to withstand the weight of the epoxy you will be pouring.

Step 4 — Lay out the Pattern



- Distribute the pennies across the surface however you see fit. Make sure that each penny is butted securely up against each of its neighbors.
- *if you decide to lay in patterns, it usually works better to arrange by color than by face. The distinction between heads and tails can be difficult to identify, but a non-random assemblage of similarly colored pennies stands out immediately.*



Step 5 — Fill In The Edges







- Once you have everything laid in tightly, you will notice some voids around the edges that are too small to fit a whole penny. If you are a little bit anal, like us, you'll want to fill those in
- Using a metal shear if you have one, or a pair of snips, cut pennies down fit in the gaps.
 - *No, it is absolutely NOT illegal to use coins in this fashion. You can use them or destroy them in the making of decorations of many sorts, you simply cannot spend them afterwards.*
- The snips will be pretty useless by the time you are done, so DON'T borrow someone else's or conscript your wife/husband/parent/friend/neighbor's. We used a beat up old pair of harbor freight specials that we keep around for just such strange requirements.

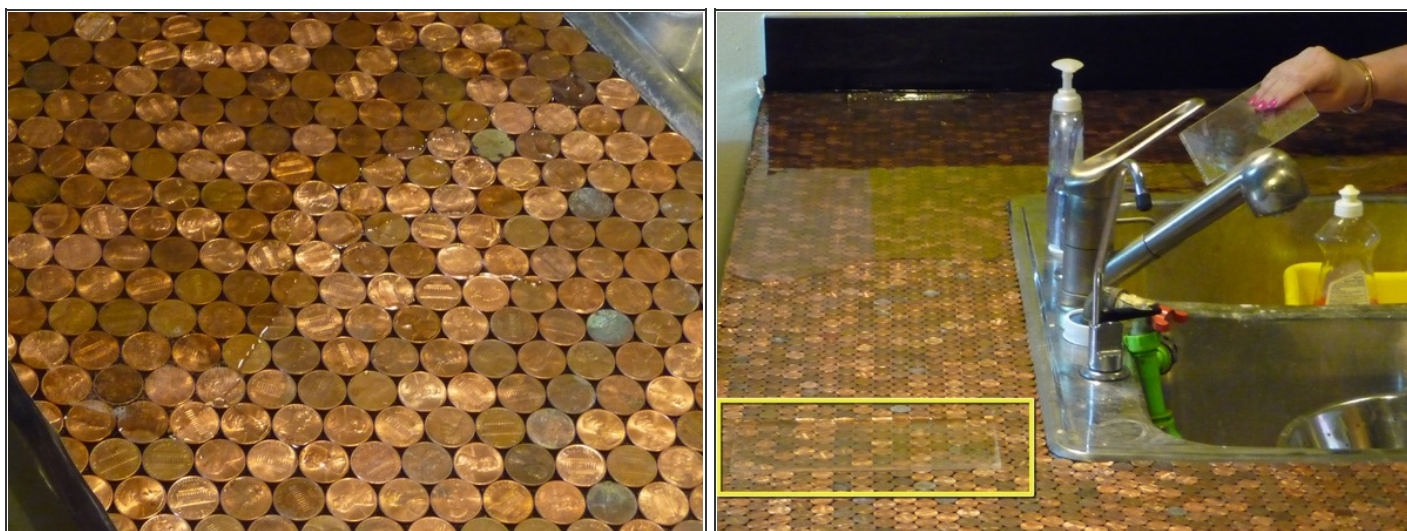



Step 6 — Mix the Epoxy



- The following is the general mixing procedure, but may differ slightly from your specific product. If in doubt, mix the epoxy according to the instructions for your product.
- **Take your time. Measure Carefully and Mix Thoroughly!** Do **NOT** try to take shortcuts. Screwing this up can cause the epoxy to set up too fast, or worse, not at all. 
- Purchase two identical measuring containers. Label them Part A and B and be sure to pour the correct part into the correct cup. By themselves, neither part will harden so the cups can be reused throughout the project. You will also need several disposable containers to mix in. They can be reused this session, but not for later coats. 
- It is very easy to accidentally pour too much and if you're pouring both into the same container you can't pour some back. 
- Start your timer and pour both parts into one of these containers at the same time and mix for the prescribed amount of time (2min for ours.) As you mix, scrape the sides and bottom of the container to ensure it is fully incorporated.
- When the timer expires, pour the entire batch into a clean container, scraping the sides of the first one. Reset the timer and continue mixing (for another 2 minutes in our case.) You are then ready to pour. It's generally not recommended that you scrape the sides of this container in case any unmixed epoxy remains.
- Though tempting, **DO NOT** use a power drill or other powered mixer for this. It will introduce a tremendous amount of air bubbles which may not be expelled before the epoxy sets. 

Step 7 — Pour the epoxy



- Pour slowly and evenly from 2-3 feet above the surface in a small, narrow stream. Just like in mold making, the narrow stream helps to disperse the air bubbles introduced in the mixing process, minimizing bubbles on surface to be coated.
- Use a squeegee to spread the epoxy evenly and fill in voids. The first coat should just barely cover the pennies.
- Work in small batches, and work quickly. If you are doing more than a small area, it's really best as a two person job. One to mix and pour, and one to distribute the epoxy. Depending on the product you choose, you'll have between 10 and 25 minutes of work time.
- Beyond the "working time" or "open time", touching it may leave marks. (If this isn't your final layer, marks aren't critical as later layers will bond to it transparently.) 
- The yellow highlight shows a piece of acrylic we were using as a spreader laying on the dry pennies. **DON'T DO THIS!** When picking up the spreader later, the epoxy on it will cause it to pick up a bunch of pennies in the process. Not something you want to deal with while under the gun of epoxy curing time.

Step 8 — Watch for and remove air bubbles



- Because each penny has a raised edge, it forms an air pocket underneath. When the heavy epoxy liquid is poured on top, it forces the air out. The epoxy is engineered to expel air bubbles naturally, but particularly as you get closer to the epoxy setting up, they may not break by themselves.
- The instructions recommend the use of a propane torch. They suggest that it's the CO2 from the flame, not the flame itself that encourages the bubbles to pop. I think it's also heating the air in the bubble which causes it to expand rapidly and pushes it toward the surface.
- Run the torch quickly across the surface. Do not stay too long in one place. The epoxy is not flammable, but it will burn and discolor if you stay in one place too long.
- We also had success using the corner of our acrylic spreader tools, as well as the point of drywall screws to pop the bubbles.

Step 9 — Prep for Second Coat



- Allow the first coat to completely cure - generally 10-12 hours
- Check the surface for air bubbles or other imperfections. Use a small drill bit and knife to open up and round the edges of the bubbles or other defects. As long as they're open and clean, the second coat will fill them in completely.
- If you don't want to put a border to your surface, remove whatever material you used for a dam on the first coat, and put down a mask on the floor and any appliances/cabinets under the surface. We opted to paint our edge black at this stage, then the second coat was allowed to run over the edge to make it glossy.
- If it's necessary to clean the surface between coats, use Acetone, which is recommended by the epoxy manufacturer.

Step 10 — Edge Cleanup



- No matter how careful you are, there will be a few drips along the underside of your surface. Once the epoxy is partially set, you can use a razor blade to remove these. If you wait until it's fully cured, you will need to use a sander instead.
- Note: with some brands at least, the epoxy will remain somewhat soft. If you leave a heavy item on the counter for a while, it will leave an indentation. The good news is, when you move it, it will gradually level out. You can avoid this by avoiding heavy things with relatively small feet, or by placing such items on a flat board or plate to distribute the weight more evenly.



We have included the two page printable guide we handed out at the Bay Area Maker Faire 2012.

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